

**dipole surround speaker**

## operation manual

**SS-500 THX**



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5,043,970; 5,189,703, and  
5,222,059. Foreign patents  
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 **M&K SOUND™**

Miller & Kreisel Sound, Inc.  
9351 Deering Avenue  
Chatsworth, CA 91311-5858 USA  
(818) 701-7010 fax (818) 701-0369  
[www.mksound.com](http://www.mksound.com)  
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Please record the following information for your records:

Serial Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Dealer Name: \_\_\_\_\_

Dealer Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Country: \_\_\_\_\_

Invoice Number: \_\_\_\_\_

## 1. INTRODUCTION

Congratulations! Your new M&K SS-500 surround system will give you years of unmatched enjoyment and excitement while listening to your favorite musical and audio/video sources in THX, Pro-Logic, and enhanced stereo modes.

We encourage you to read this owner's manual, as there is a great deal of information provided here to help you get the best possible performance.

If you have any questions about your speaker system, please contact your M&K dealer or call the M&K factory directly at (818) 701-7010, from 8:30 AM to 5:00 PM Pacific Time, Monday through Friday. We will be happy to help you with any question. Additional information can also be obtained on our web site: [www.mkssound.com](http://www.mkssound.com) or you can send us an e-mail to [support@mkssound.com](mailto:support@mkssound.com).

## 2. THE HOME THX AUDIO SPEAKER SYSTEM

Your choice of an M&K Home THX Audio speaker system assures you of achieving the state of the art in home theatre music and video reproduction. The precise and exacting standards developed by Lucasfilm's Home THX division assure that you will hear every element of film sound — from the softest brush of an object against an actor's clothing to the awesome impact of effects such as an exploding planet — with the same sonic quality heard by the film's director and sound designer as they created the final mix of sound on the studio's dubbing stage.

To do this in a home environment requires different equipment and standards than are found in a THX motion picture theatre. The standards developed for Home THX Audio are critically important to achieving the following performance attributes:

- wide frequency range, extending to the limits of audibility
- smooth, naturally balanced overall sound
- excellent dialog intelligibility
- wide dynamic range with extremely low distortion
- well-matched timbre (tonal balance) between front speakers and surrounds
- precise localization of specific sounds (as in special effects)
- envelopment by ambient soundfield (without any localization of individual speakers to distract from the action on-screen
- superb performance with musical sources

The unsurpassed quality of your M&K Home THX Audio speaker system means that all of the excitement and emotional involvement of films and music will be brought to life in your home. Turn down the lights, and let the experience begin!

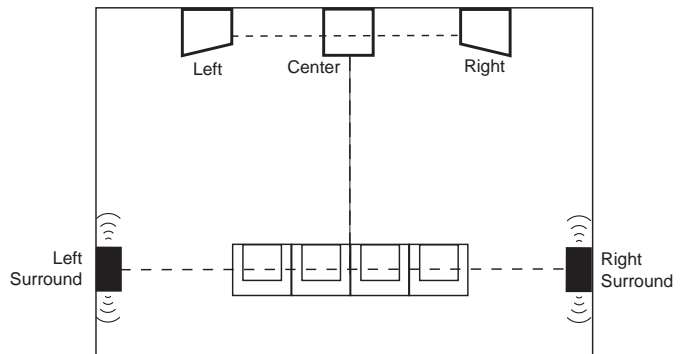
## 3. PLACEMENT OF THE SS-500s AS SURROUND CHANNEL

### SPEAKERS IN A HOME THX AUDIO SYSTEM

Your SS-500 speakers are specifically designed to be used as surround channel speakers in a Home THX or Pro-Logic system. They are not designed to be used as front channel or as stand-alone stereo speakers. Therefore, the instructions given here apply only to surround channel applications (including use for multi-channel music modes such as ambience recovery or acoustical environment synthesis).

In general, the SS-500s should be located high on the walls and to the sides of the listening position. See Figure 1. The key factor in placement of the SS-500s is that they are dipole speakers. They radiate sound to the front and the rear of the room, instead of directly at the listeners. The speakers should be

**FIGURE 1**



placed so that listeners are sitting in the NULL of their radiation pattern, halfway in between the speakers. In other words, contrary to normal practice, the drivers (which are covered by the grilles) point at the front and rear walls of the room, NOT at the listeners.

This configuration prevents listeners from localizing the surround speakers as a direct source of sound. Instead, the listeners are enveloped by a diffuse ambient soundfield, hearing only indirect sound reflected from various room surfaces.

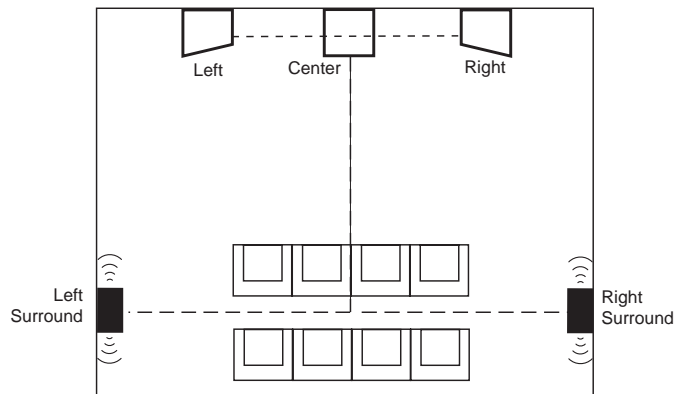
Therefore, the grilles should point towards the front and rear room walls, with the cabinet side that is a plain wood panel "pointed" at the listeners, and the side with the speaker input terminals and the mounting brackets facing the closest side wall.

**a. POSITION RELATIVE TO SEATING**

The SS-500 speakers should be located adjacent to the seating position. If there is one row of seats, the SS-500s should be located directly to the left and to the right of this row of seats. See Figure 1. If there are multiple rows of seats, then the SS-500s should be located directly to the left and right of the geometric center of the listening area. See Figure 2. The effective null of the speakers is rather wide, so the enveloping characteristic covers a reasonably broad area.

If the SS-500s cannot be located exactly adjacent to the seating area, it is better for them to be located slightly towards the back of the room, behind the listening positions, rather than in the front of the room, between the listening position and the screen.

**FIGURE 2**



**b. HEIGHT**

In general, the SS-500 should be located near the ceiling. Placement above the listeners' heads is very important, with the cabinet's bottom at least two feet above a seated listener's head. In fact, if at all possible, the speakers should be located above a standing listener's head, so that people walking around the room will be unable to localize them.

Remember that this speaker should produce an enveloping, non-directional sound, so there is no requirement that it be located in any way near to the listeners.

**4. INSTALLATION OF YOUR SS-500 SPEAKERS**

Your M&K SS-500s can be installed in a variety of ways. Choosing the correct location, however, is extremely critical. READ SECTION 5 (page 6) BEFORE DECIDING WHERE TO INSTALL YOUR SS-500s.

They can be placed on tall stands (not supplied by M&K); shelves or bookcases; or more permanently mounted using brackets or a ceiling suspension system. To make their installation as easy as possible, we have provided integral flush-mount brackets that allow you to install the SS-500 quickly and securely.

Your SS-500 speakers have two flush-mount wall brackets attached to each cabinet, mounted on the side that sits against (or closest to) the side wall. Enclosed with your speakers is a kit consisting of four matching brackets that attach directly to the wall, as well as all necessary mounting screws and drywall inserts.

In order to use these brackets, first see the enclosed template, and follow these instructions. The initial step is to determine where you will locate your SS-500s. See Section 4 (page 5), for guidelines on where to locate the speakers. Then, using the template sheet enclosed, mark holes on the wall where the brackets will be permanently mounted. Ideally, one set of these holes should go into a wall stud, to give you the greatest strength. The size of the SS-500 cabinet, however, does not allow both brackets to go into conventionally spaced studs. If you will use a stud, locate its center.

Tape the four corners of the template sheet to the wall in the location you have selected, using a carpenter's level to make sure the line marked "LEVEL TEMPLATE TO THIS LINE" is level. The template sheet has locations marked for four mounting holes, two each for the two brackets needed to hang the SS-500s.

Once you are absolutely certain that you have the correct location, you are ready to drill the pilot holes. Go ahead and drill right through the paper template into the wall. Re-check your measurements (especially making sure the holes will be level) at least once before drilling.

**WARNING: IT IS POSSIBLE THAT ELECTRICAL WIRING MAY BE LOCATED BEHIND THE WALL IN THE LOCATION THAT YOU HAVE SELECTED. BE EXTREMELY CAREFUL ANY TIME YOU DRILL INTO A WALL.**

If you are mounting the bracket to a wall stud, drill two 3/32" holes per bracket. Remember that the wallboard material is 1/2" or 5/8" inches thick, and you will drill through this before meeting the stud. If you are mounting the bracket to drywall with the plastic anchors, drill two 1/4" pilot holes per bracket. Once all holes have been drilled, remove the template from the wall. Press the plastic wall anchors into the 1/4" pilot holes until they are flush with the wall. Tap them gently into place if necessary.

Once the holes are drilled, place one bracket against the wall, making sure that the "tongue" (the portion that will engage the bracket on the speaker cabinet) is facing away from the wall and pointing up. Using the two #6 - 1 3/4" wood screws provided, fasten this bracket to the wall. BE VERY CAREFUL. DO NOT FORCE THE PLASTIC ANCHORS THROUGH THE WALL OR OVERTIGHTEN THE SCREWS. Install the second bracket in the same fashion.

That's it! All that is left for you to do is attach the speaker wire to the input terminals (Section 4, below), and, from the top, gently slide the speaker into place against the wall. Do the same for the other channel.

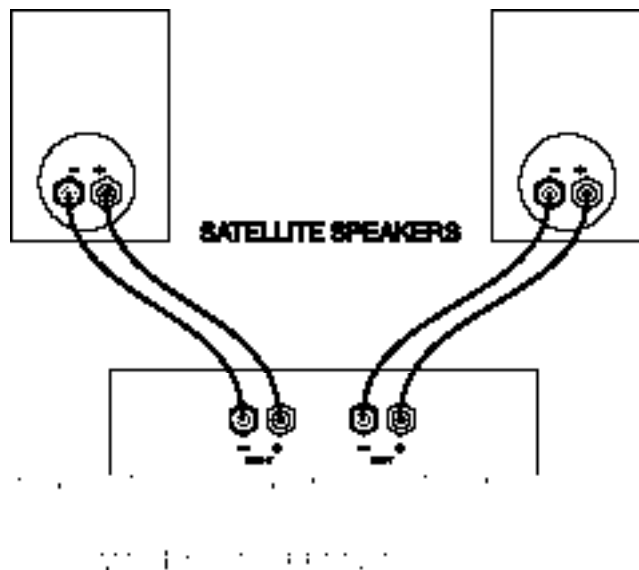
## 5. SS-500THX SPEAKER HOOK-UP

### LEFT CHANNEL SPEAKER / RIGHT CHANNEL SPEAKER

Your SS-500s are mirror imaged, meaning that there is a Left Channel speaker and a Right Channel speaker. It is critical that the correct speaker be used in each channel.

On the plastic cup that contains the speaker input terminals, there is an arrow with the printed nomenclature "Point Arrow Towards Screen." To correctly install the SS-500s, be sure that the arrow printed on each speaker is pointed towards the television screen. Remember that the input terminals go towards the nearest side wall. The arrows will not be visible once the speaker is installed.

**FIGURE 3**





To confirm that the speakers are correctly installed right and left, check to see that the 5" woofer facing the television screen is at the bottom of the baffle for both the Left and Right speakers. The 5" woofer facing the back wall should be at the top of the baffle for both the Left and Right speakers.

### **WIRING THE SS-500**

The Positive ( + ) lead from your amplifier or receiver should be connected to the RED ( + ) "INPUT" terminal, and the Negative ( — ) lead from your amplifier or receiver should be connected to the BLACK ( — ) "INPUT" terminal. See Figure 3.

### **SPEAKER WIRE**

The sound quality that you get from your SS-500s can be affected by the type of speaker wire that you use to connect them. While it is possible to use speaker wire as thin as 22 gauge to hook your SS-500s up, wire of less than 16 gauge will compromise their sound quality. For wire runs of up to 10 feet, 16 gauge wire is acceptable. For runs up to 20 feet, you should use a minimum of 14 gauge. For up to 30 feet, use a minimum of 12 gauge, and over 30 feet should use 10 gauge. See the THX Installation and Operation Manual for more information.

There are a wide variety of premium speaker cables available from a number of specialist manufacturers. We do not endorse any specific brand of premium cable, but we do recommend the highest quality cable that fits your budget. Beware, though -- with cables, expensive is not always better. If you have any questions, contact your M&K Home THX dealer for advice.

Regardless of the speaker wire you choose to use, we have provided a method for you to conceal that wire along the side of the SS-500 that is in contact with the side wall. A channel has been routed into the cabinet baffle that contains the speaker input terminals. This channel runs from the top of the cabinet to the bottom of the cabinet, and allows wires to be run between the cabinet and the wall from either above or below. Wires run through this channel are not visible in the room, making for a much cleaner and more attractive installation.

## **6. SPEAKER PHASING TEST**

In any system using a subwoofer separate from Satellite speakers, especially in multi-channel surround sound applications, a phasing test must be performed to insure proper phase in the system, thereby achieving optimum sound in the critical bass frequencies.

For a Home THX Audio system, follow the system instructions provided with the THX controller, as you will need to have correct phase among all the speakers in the system. These instructions will take you through the front channels, surround channels, and subwoofer, by comparing phase between individual channels until you have established that all units have identical phase.

## **7. SPEAKER DAMAGE & HOW TO AVOID IT**

An important factor to consider with any loudspeaker system is the potential for speaker damage. Even though your SS-500s have extremely high power handling ability, they still can be damaged by relatively low powered amplifiers.

While very few M&K Satellites are actually returned for service, the vast majority of those returned are not for manufacturing defects. Instead, they are returned because they have been overdriven, almost always because the amplifier or receiver used was driven into clipping distortion. This damage is considered abuse, and is not necessarily covered under warranty.

This clipping distortion occurs when the demands of the music are greater than the amplifier's available power. It can occur at 20 watts with a small amplifier, or at 400 watts with a large amplifier. Regardless, when this happens, the amplifier's output waveform (which usually looks like a smooth arc) is "clipped" off, exhibiting a flat top instead of the arc.

This flat top contains multiples of the original amplified frequencies, sometimes at higher levels than the original signal itself. For tweeters, this can be very damaging, as this distortion is well above the audible range, where you will be unable to hear it, and where the tweeter is more vulnerable to damage.



When an amplifier clips, its sound becomes harsh and grating, and a break-up is often audible in the bass frequencies. It will become uncomfortable to listen to, compared to a slightly lower volume level. When you are listening at high volume levels, be aware of the onset of clipping distortion, and turn the volume down slightly if the sound takes on the character described above.

When tone controls or equalizers are used to boost frequencies, the problem occurs much more rapidly. Even a small boost of low or high frequencies can easily double the power requirement and lead to amplifier clipping at moderate levels. Therefore, you should use your tone controls judiciously, avoiding extreme boosts of the bass and treble controls, especially when you are listening at high volume levels.

The best way to avoid speaker damage is to use common sense. Use moderate boosts of tone controls or equalizers, at the very most. Listen carefully for any harshness and break-up, especially at high volume levels, and turn down the volume when needed. If you cannot get enough volume, you may need to consider a higher-powered amplifier. If you have any questions about this, please contact M&K, and we will be happy to discuss it with you further.

## **8. IF YOU NEED SERVICE**

Contact your dealer or M&K with a complete description of the problem. Please have the unit's model and serial numbers (found on the back of the cabinet), date of purchase, and your dealer's name. You can call M&K between 8:30 AM and 5:00 PM Pacific Time, Monday through Friday, at (818) 701-7010. If you call outside these hours, leave a message, and we will return your call. Alternatively, an e-mail may be sent to [service@mksound.com](mailto:service@mksound.com).

## **DO NOT RETURN YOUR SPEAKERS TO THE FACTORY FOR SERVICE WITHOUT OBTAINING PRIOR AUTHORIZATION.**

All M&K speakers (except for subwoofers) carry a ten year limited parts and labor warranty. This warranty is transferable to new owners. It does not cover abuse, misuse, repairs by unauthorized service stations, speakers without serial numbers, and those damaged in shipping or by accident. If you have any questions about the warranty, please contact M&K.

## **9. CABINET MAINTENANCE**

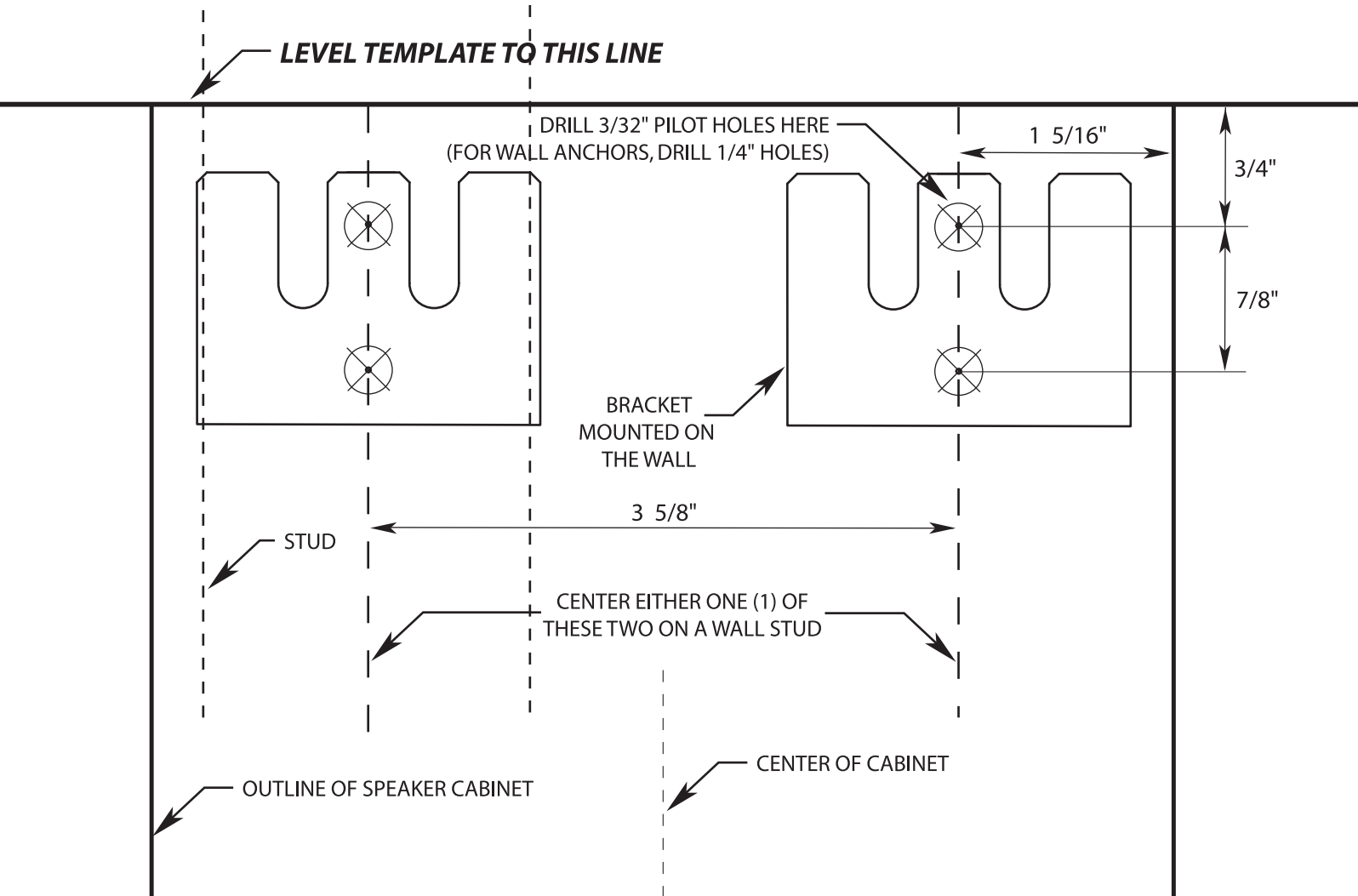
The genuine oak veneer or painted black cabinets of your M&K SS-500s have a furniture-grade finish that will maintain its attractive appearance with proper care.

Treat the cabinet as you would any piece of fine furniture. If your cabinet is natural oak, rubbing the wood periodically with an oil or polish will enhance its beauty and protect its finish as long as you own it. If your cabinet is painted black oak, regular dusting and cleaning is all that is required. Matching black paint can be used if necessary to repair any surface damage.

## **10. SPECIFICATIONS**

IMPEDANCE:	4 ohms
MINIMUM POWER:	10 watts RMS
RECOMMENDED POWER:	50 watts RMS to 200 watts RMS
MAXIMUM POWER:	400 watts RMS unclipped peaks
FREQUENCY RESPONSE:	100 - 20 KHz (high frequencies above 8 KHz are not rolled off)
DIMENSIONS (HWD):	14 3/4" x 7 1/4" x 6 1/2"
WEIGHT:	14.5 lbs

# SS-500THX Wall Mounting Bracket Template and Instructions



1. If possible, we recommend mounting at least one of the wall brackets to a wall stud. If you are using a stud, locate the center of the stud.
2. Place this template on the wall and using a carpenter's level adjust the template until the top line is level. If you are mounting the bracket to a wall stud, line up the bracket holes with the center of the stud.
3. Tape this template to the wall, on all four corners and recheck to make sure it is still level. Readjust the template if necessary.
4. If you are mounting the bracket to a stud, drill two 3/32" pilot holes per bracket.
5. If you are mounting the bracket with the plastic anchors, drill two 1/4" holes per bracket. (Use the plastic anchors only if you are not able to mount the bracket to a wall stud.)
6. Drill the pilot holes right through this paper template.
7. Carefully remove the template from the wall.
8. Position the bracket over the pilot holes and secure in place using the supplied wood screws.
9. If you mounting the bracket to the dry wall, press the plastic wall anchors into the 1/4" pilot holes and if necessary, gently tap them into place until they are flush with the wall.
10. Using the supplied #6 x1-3/4" screws, mount the bracket to the wall. Be careful not to force the plastic anchors through the wall or over tighten the screws.
11. Attach the speaker wires to the speaker.
12. Place the back of the speaker (with the other component of the bracket in place) and carefully slide the speaker down the wall until the brackets mate.